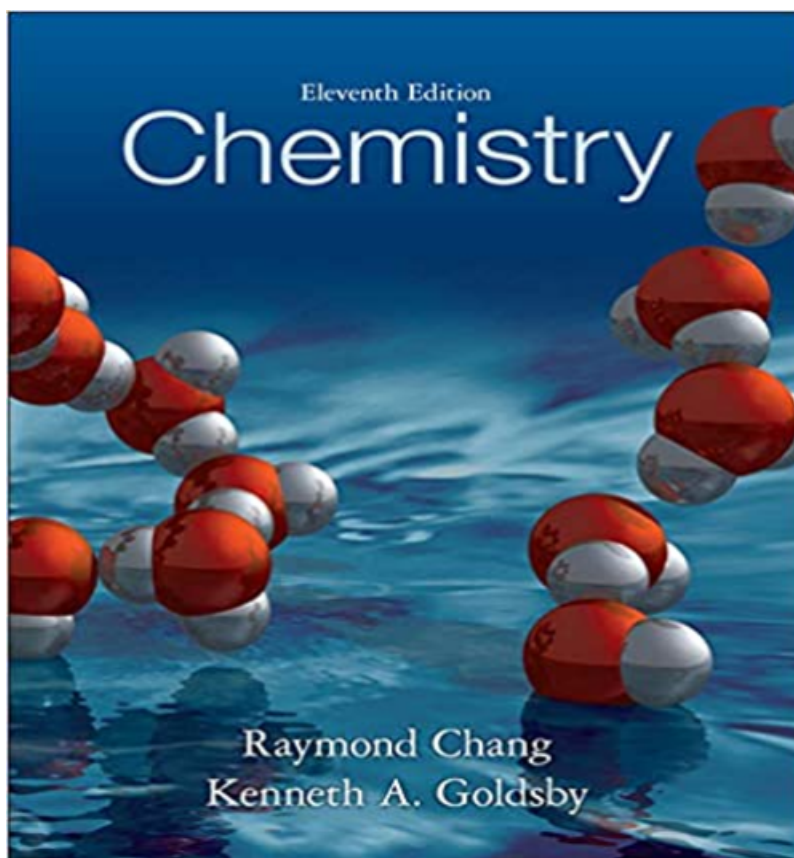


**Test Bank for Chemistry 11th Edition by Chang ISBN
007766695X 9780077666958 digital download**

<https://testbankpack.com/download/test-bank-for-chemistry-11th-edition-by-chang-isbn-007766695x-9780077666958/>

★★★★★

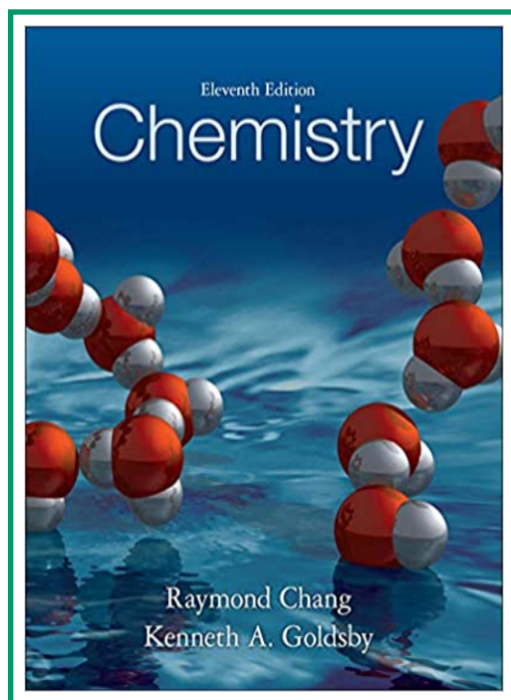
4.8 out of 5.0 (90 reviews)



Instant PDF Download

testbankpack.com

**Test Bank for Chemistry 11th Edition by Chang ISBN
007766695X 9780077666958**



SOLUTION MANUAL

TEST BANK

PDF

Available Formats

■ PDF Test bank

Study Manual

Test bank

EXCLUSIVE 2025 ACADEMIC EDITION – LIMITED RELEASE

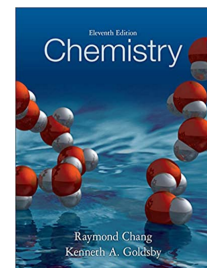
Ready to Download

Explore Library

Here are some suggested products you might be interested in.
Click the link to download

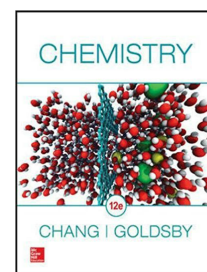
**Solution Manual for Chemistry 11th Edition by Chang ISBN
007766695X 9780077666958**

<https://testbankpack.com/download/solution-manual-for-chemistry-11th-edition-by-chang-isbn-007766695x-9780077666958/>



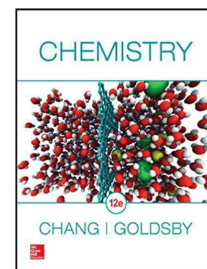
**Test Bank for Chemistry 12th Edition by Chang ISBN
0078021510 9780078021510**

<https://testbankpack.com/download/test-bank-for-chemistry-12th-edition-by-chang-isbn-0078021510-9780078021510/>



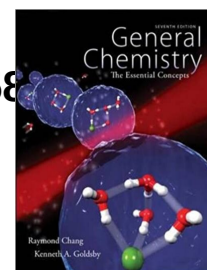
**Solution Manual for Chemistry 12th Edition by Chang ISBN
0078021510 9780078021510**

<https://testbankpack.com/download/solution-manual-for-chemistry-12th-edition-by-chang-isbn-0078021510-9780078021510/>



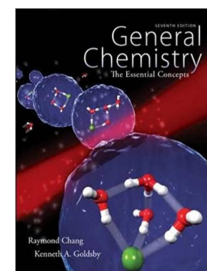
**Test Bank by General Chemistry The Essential Concepts 7th
Edition by Chang and Goldsby ISBN 0073402753 9780073402758**

<https://testbankpack.com/download/test-bank-by-general-chemistry-the-essential-concepts-7th-edition-by-chang-and-goldsby-isbn-0073402753-9780073402758/>



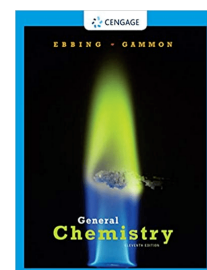
Solution Manual by General Chemistry The Essential Concepts 7th Edition by Chang and Goldsby ISBN 0073402753 9780073402758

<https://testbankpack.com/download/solution-manual-by-general-chemistry-the-essential-concepts-7th-edition-by-chang-and-goldsby-isbn-0073402753-9780073402758/>



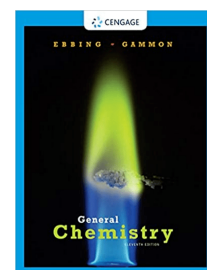
Test Bank for General Chemistry 11th Edition by Ebbing Gammon ISBN 1305580346 9781305580343

<https://testbankpack.com/download/test-bank-for-general-chemistry-11th-edition-by-ebbing-gammon-isbn-1305580346-9781305580343/>



Solution Manual for General Chemistry 11th Edition by Ebbing Gammon ISBN 1305580346 9781305580343

<https://testbankpack.com/download/solution-manual-for-general-chemistry-11th-edition-by-ebbing-gammon-isbn-1305580346-9781305580343/>



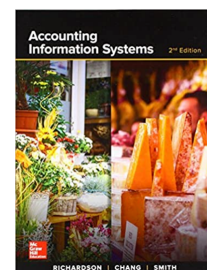
Test Bank for Accounting Information Systems 1st Edition Richardson Chang Smith 0078025494 9780078025495

<https://testbankpack.com/download/test-bank-for-accounting-information-systems-1st-edition-richardson-chang-smith-0078025494-9780078025495/>



Test Bank for Accounting Information Systems 2nd Edition Richardson Chang Smith 1260153150 9781260153156

<https://testbankpack.com/download/test-bank-for-accounting-information-systems-2nd-edition-richardson-chang-smith-1260153150-9781260153156/>



Test Bank for Chemistry 11th Edition by Chang ISBN 007766695X 9780077666958

Full link download

Test Bank:

<https://testbankpack.com/p/test-bank-for-chemistry-11th-edition-by-chang-isbn-007766695x-9780077666958/>

Solution Manual:

<https://testbankpack.com/p/solution-manual-for-chemistry-11th-edition-by-chang-isbn-007766695x-9780077666958/>

Chapter 2: Atoms, Molecules, and Ions

A periodic table is required to work many of the problems in this chapter.

1. In a cathode ray tube

- A) electrons pass from the anode to the cathode.
- B) electrons pass from the cathode to the anode.
- C) protons pass from the anode to the cathode.
- D) protons pass from the cathode to the anode.

Ans: B Category: Medium Section: 2.2

2. The scientist who determined the magnitude of the electric charge of the electron was

- A) John Dalton.
- B) Robert Millikan.
- C) J. J. Thomson.
- D) Henry Moseley.
- E) R. Chang.

Ans: B Category: Easy Section: 2.2

3. When J. J. Thomson discovered the electron, what physical property of the electron did he measure?

- A) its charge, e
- B) its charge-to-mass ratio, e/m
- C) its temperature, T
- D) its mass, m
- E) its atomic number, Z

Ans: B Category: Easy Section: 2.2

4. Which of the following scientists developed the nuclear model of the atom?

- A) John Dalton
- B) Robert Millikan
- C) J. J. Thomson
- D) Henry Moseley
- E) Ernest Rutherford

Ans: E Category: Easy Section: 2.2

5. Rutherford's experiment with alpha particle scattering by gold foil established that

- A) protons are not evenly distributed throughout an atom.
- B) electrons have a negative charge.
- C) electrons have a positive charge.

D) atoms are made of protons, neutrons, and electrons.

E) protons are 1840 times heavier than electrons.

Ans: A Category: Medium Section: 2.2

6. Atoms of the same element with different mass numbers are called

A) ions. B) neutrons. C) allotropes. D) chemical families. E) isotopes.

Ans: E Category: Easy Section: 2.3

7. An atom of the isotope ^{137}Ba consists of how many protons (p), neutrons (n), and electrons (e)?

A) 56 p, 137 n, 56 e

D) 56 p, 56 n, 56 e

B) 56 p, 81 n, 56 e

E) 81 p, 56 n, 81 e

C) 137 p, 81 n, 56 e

Ans: B Category: Medium Section: 2.3

8. Give the number of protons (p), neutrons (n), and electrons (e) in one atom of ^{238}U .

A) 146 p, 92 n, 92 e

D) 146 p, 28 n, 146 e

B) 92 p, 92 n, 92 e

E) 238 p, 146 n, 238 e

C) 92 p, 146 n, 92e

Ans: C Category: Medium Section: 2.3

9. Which of the following are isotopes?

A) ^{14}C and ^{13}C

D) ^{12}C and ^{12}CO

B) ^{14}C and ^{14}N

E) ^{14}N and $^{14}\text{N}_2$

C) ^{14}N and $^{14}\text{N}^{3-}$

Ans: A Category: Easy Section: 2.3

10. Complete the following chart, in order from left to right

Isotope	Mass Number	Protons	Neutrons	Electrons
^{14}N				

A) 14, 7, 7, 7

D) 7, 14, 7, 7

B) 14, 7, 14, 7

E) Some other answer

C) 7, 7, 7, 7

Ans: A Category: Medium Section: 2.3

11. Complete the following chart, in order from left to right

Isotope	Mass Number	Protons	Neutrons	Electrons
	40	19		19

A) ^{40}Zr , 21 B) ^{19}K , 40 C) ^{21}K , 19 D) ^{40}K , 21 E) ^{38}Sr , 19

Ans: D Category: Medium Section: 2.3

12. Complete the following chart, in order from left to right

Isotope	Mass Number	Protons	Neutrons	Electrons
		40	57	40

A) ^{97}Zr , 97 B) ^{40}Zr , 57 C) ^{57}La , 40 D) ^{97}Bk , 80 E) ^{80}Hg , 97

Ans: A Category: Medium Section: 2.3

13. Complete the following chart, in order from left to right.

Ion	Mass Number	Protons	Neutrons	Electrons
$^{40}\text{Ca}^{2+}$				

- A) 40, 20, 20, 20
B) 40, 20, 20, 18
C) 20, 20, 40, 20
D) 40, 20, 20, 22
E) 20, 40, 20, 22

Ans: B Category: Medium Section: 2.3

14. Complete the following chart, in order from left to right.

Ion	Mass Number	Protons	Neutrons	Electrons
	4	2		0

- A) ${}^4\text{He}$, 2 B) ${}^4\text{Be}$, 4 C) ${}^4\text{Be}$, 2 D) ${}^4\text{He}$, 4 E) ${}^2\text{H}$, 2

Ans: A Category: Medium Section: 2.3

15. The elements in a column of the periodic table are known as

- A) metalloids. B) a period. C) noble gases. D) a group. E) nonmetals.

Ans: D Category: Easy Section: 2.4

16. Which of the following elements is most likely to be a good conductor of electricity?

- A) N B) S C) He D) Cl E) Fe

Ans: E Category: Easy Section: 2.4

17. Which of the following elements is chemically similar to magnesium?

- A) sulfur B) calcium C) iron D) nickel E) potassium

Ans: B Category: Easy Section: 2.4

18. Which of the following elements is chemically similar to oxygen?

- A) sulfur B) calcium C) iron D) nickel E) sodium

Ans: A Category: Easy Section: 2.4

19. Which of the following elements is chemically similar to potassium?

- A) calcium B) arsenic C) phosphorus D) cerium E) cesium

Ans: E Category: Easy Section: 2.4

20. An *anion* is defined as

- A) a charged atom or group of atoms with a net negative charge.
B) a stable atom.
C) a group of stable atoms.
D) an atom or group of atoms with a net positive charge.

Ans: A Category: Easy Section: 2.5

21. Which one of the following is an ion?
 A) B^{3+} B) NaCl C) He D) ^{14}C E) none of the above
 Ans: A Category: Easy Section: 2.5
22. Which one of the following elements is most likely to form a $2+$ ion?
 A) calcium B) carbon C) fluorine D) oxygen E) sodium
 Ans: A Category: Easy Section: 2.5
23. Which one of the following elements is most likely to form a $2-$ ion?
 A) scandium B) selenium C) silicon D) strontium E) iodine
 Ans: B Category: Easy Section: 2.5
24. A magnesium ion, Mg^{2+} , has
 A) 12 protons and 13 electrons. D) 24 protons and 22 electrons.
 B) 24 protons and 26 electrons. E) 12 protons and 14 electrons.
 C) 12 protons and 10 electrons.
 Ans: C Category: Medium Section: 2.5
25. An aluminum ion, Al^{3+} , has:
 A) 13 protons and 13 electrons D) 13 protons and 10 electrons
 B) 27 protons and 24 electrons E) 10 protons and 13 electrons
 C) 16 protons and 13 electrons
 Ans: D Category: Medium Section: 2.5
26. An oxide ion, O^{2-} , has:
 A) 8 protons and 10 electrons D) 8 protons and 7 electrons
 B) 10 protons and 8 electrons E) 10 protons and 7 electrons
 C) 8 protons and 9 electrons
 Ans: A Category: Medium Section: 2.5
27. A phosphide ion has:
 A) 10 protons and 13 electrons D) 15 protons and 18 electrons
 B) 12 protons and 15 electrons E) 18 protons and 21 electrons
 C) 15 protons and 15 electrons
 Ans: D Category: Medium Section: 2.5
28. An iron(II) ion has:
 A) 24 electrons and a charge of $2+$ D) 28 electrons and a charge of $2+$
 B) 24 electrons and a charge of $2-$ E) 28 electrons and a charge of $2-$
 C) 26 electrons and a charge of $2+$
 Ans: A Category: Medium Section: 2.5
29. How many protons and electrons are present in one Br^- ion?
 A) 35 p, 35 e B) 80 p, 81 e C) 35 p, 34 e D) 35 p, 36 e E) 80 p, 34 e
 Ans: D Category: Medium Section: 2.5

30. What are the two different ions present in the compound CaS ?
 A) Ca^+ , S^- B) Ca^{2-} , S^{2+} C) Ca^- , S^+ D) Ca^{2+} , S^{2-} E) Ca , S
 Ans: D Category: Medium Section: 2.6
31. What are the two different ions present in the compound Na_2S ?
 A) Na_2^+ , S^{2-} B) Na^+ , S^{2-} C) Na^{2+} , S^{2-} D) Na^+ , S^- E) Na^{2+} , S^-
 Ans: B Category: Medium Section: 2.6
32. What are the two different ions present in the compound Li_3N ?
 A) Li^+ , N^{3-} B) Li_3^+ , N^- C) Li_3^{3+} , N^{3-} D) Li^+ , N^- E) Li^{3+} , N^{3-}
 Ans: A Category: Medium Section: 2.6
33. What are the two different ions present in the compound FeCl_3 ?
 A) Fe^{2+} , Cl_3^- B) Fe^{3+} , Cl^{3-} C) Fe^+ , Cl^- D) Fe^{3+} , Cl^- E) Fe^+ , Cl^-
 Ans: D Category: Medium Section: 2.6
34. What are the ions present in the compound CO_2 ?
 A) C^{4+} , 2O^{2-} B) C^{2+} , 2O^- C) C^{2+} , O^{2-} D) C^{2+} , O_2^{2-} E) no ions present
 Ans: E Category: Medium Section: 2.6
35. What are the ions present in the compound CH_4 ?
 A) C^{4+} , H^+ B) C^{4-} , H^+ C) C^- , H^+ D) C^{4-} , H^{4+} E) no ions present
 Ans: E Category: Medium Section: 2.6
36. Which of the following is an example of an empirical formula?
 A) C_9H_{12} B) $\text{C}_9\text{H}_{18}\text{Cl}_2$ C) C_6H_6 D) N_2O_4 E) $\text{C}_2\text{H}_2\text{O}_2$
 Ans: B Category: Medium Section: 2.6
37. What is the empirical formula for $\text{C}_{10}\text{H}_{22}\text{O}_2$?
 A) $\text{C}_{10}\text{H}_{22}\text{O}_2$ B) $\text{C}_5\text{H}_{11}\text{O}$ C) $\text{C}_{20}\text{H}_{44}\text{O}_4$ D) $\text{C}_2\text{H}_{11}\text{O}$ E) $\text{C}_5\text{H}_{11}\text{O}_2$
 Ans: B Category: Medium Section: 2.6
38. What is the empirical formula for $\text{C}_6\text{H}_{14}\text{O}$?
 A) $\text{C}_6\text{H}_{14}\text{O}$ B) $\text{C}_3\text{H}_7\text{O}$ C) $\text{C}_2\text{H}_7\text{O}$ D) $\text{C}_{12}\text{H}_{28}\text{O}_2$ E) CHO
 Ans: A Category: Medium Section: 2.6
39. What is the ion ClO_4^- named?
 A) chloride ion D) perchlorite ion
 B) chlorite ion E) perchlorate ion
 C) hypochlorite ion
 Ans: E Category: Medium Section: 2.7
40. What is the formula for the ionic compound containing calcium ions and nitrate ions?
 A) Ca_3N_2 B) $\text{Ca}(\text{NO}_3)_2$ C) Ca_2NO_3 D) Ca_2NO_2 E) CaNO_3
 Ans: B Category: Medium Section: 2.7

41. What is the formula for the ionic compound containing calcium ions and oxide ions?
 A) CaO B) Ca₂O C) CaO₂ D) Ca₃O E) CaO₃
 Ans: A Category: Medium Section: 2.7
42. What is the formula for the ionic compound containing iron (III) ions and iodide ions?
 A) FeI B) Fe₂I C) FeI₂ D) FeI₃ E) Fe₃I
 Ans: D Category: Medium Section: 2.7
43. What is the formula for the ionic compound containing sodium ions and nitride ions?
 A) NaN B) Na₂N C) NNa₂ D) Na₃N E) NNa₃
 Ans: D Category: Medium Section: 2.7
44. What is the formula for the ionic compound containing barium ions and sulfate ions?
 A) BaSO₄ B) Ba₂SO₄ C) BaS D) Ba(SO₄)₂ E) Ba₃S₂
 Ans: A Category: Medium Section: 2.7
45. What are the two different ions present in the compound Al(NO₃)₃?
 A) Al³⁺, (NO₃)₃⁻ D) Al³⁺, NO₃³⁻
 B) Al⁺, NO₃⁻ E) Al⁺, (NO₃)₃⁻
 C) Al³⁺, NO₃⁻
 Ans: C Category: Medium Section: 2.7
46. What are the two different ions present in the compound NH₄NO₃?
 A) NH₄⁺, NO₃³⁻ D) NH₄³⁺, NO₄⁴⁻
 B) NH₄⁺, NO₃⁻ E) NH₄⁺, NO₃³⁻
 C) N³⁻, H⁺, O²⁻
 Ans: B Category: Medium Section: 2.7
47. Which is the correct formula for iron(II) phosphate?
 A) Fe₂PO₄ B) Fe₃(PO₄)₂ C) Fe₂PO₃ D) Fe(PO₄)₂ E) Fe(PO₃)₂
 Ans: B Category: Medium Section: 2.7
48. Which of the following is the formula for hydroiodic acid?
 A) HIO₄ B) HIO₃ C) HIO₂ D) HIO E) HI
 Ans: E Category: Medium Section: 2.7
49. The formula for calcium phosphate is
 A) CaPO₄. B) Ca₃(PO₄)₂. C) Ca₂(PO₄)₃. D) Ca₃P₂. E) Ca₃(PO₃)₂.
 Ans: B Category: Medium Section: 2.7
50. The formula for magnesium sulfate is
 A) MnS B) MgS C) MnSO₃ D) MgSO₄ E) MgSO₃
 Ans: D Category: Medium Section: 2.7

51. The formula for sodium sulfide is

- A) NaS. B) K₂S. C) NaS₂. D) Na₂S. E) SeS.

Ans: D Category: Medium Section: 2.7

52. The name for NH₄NO₃ is

- A) ammonium nitrate. D) hydrogen nitrogen oxide.
B) ammonium nitrogen trioxide. E) hydrogen nitrate.
C) ammonia nitrogen oxide.

Ans: A Category: Medium Section: 2.7

53. The name for Ba(OH)₂ is

- A) barium hydrogen oxide. D) beryllium hydroxide.
B) boron hydroxide. E) barium hydroxide.
C) barium hydrate.

Ans: E Category: Medium Section: 2.7

54. The name for KHCO₃ is

- A) calcium bicarbonate. D) calcium hydrogen carbon trioxide.
B) calcium carbonate. E) potassium hydrogen carbonate.
C) potassium carbonate.

Ans: E Category: Medium Section: 2.7

55. The name for CuSO₄·5H₂O is

- A) copper sulfate acid. D) copper(II) sulfate pentahydrate.
B) copper sulfate pentahydrate. E) copper(V) sulfate hydrate.
C) copper(II) sulfate acid.

Ans: D Category: Medium Section: 2.7

56. Give the formula for cobalt(II) chlorate dihydrate

- A) CoCl₂·2H₂O D) Co(ClO₃)₂·2H₂O
B) CoClO₃(H₂O)₂ E) Co₂(ClO₃)₃·2H₂O
C) Co(ClO₃)₂(H₂O)₂

Ans: D Category: Medium Section: 2.7

57. Name the compound Co(NO₃)₂

- A) Cobalt (I) nitrate D) Cobalt nitrite
B) Cobalt (II) nitrate E) Cobalt (II) nitride
C) Cobalt (I) nitride

Ans: B Category: Medium Section: 2.7

58. Name the compound CuSO₄

- A) Copper (I) sulfate D) Copper (II) sulfate
B) Copper (I) sulfite E) Copper (IV) sulfate
C) Copper (II) sulfite

Ans: D Category: Medium Section: 2.7

59. Name the compound Al_2O_3
A) Aluminum oxide D) Aluminum trioxide
B) Aluminum (II) oxide E) Aluminum (I) oxide
C) Dialuminum trioxide
Ans: A Category: Medium Section: 2.7
60. Which is the formula for lead(IV) chloride?
A) Pb_4Cl B) PbCl_2 C) PbCl_3 D) PbCl_4 E) Pb_2Cl_4
Ans: D Category: Medium Section: 2.7
61. What type of compound is $\text{Mg}(\text{NO}_3)_2$?
A) Ionic B) Molecular C) Acid D) Base E) Hydrate
Ans: A Category: Medium Section: 2.7
62. What type of compound is NH_4NO_3 ?
A) Ionic B) Molecular C) Acid D) Base E) Hydrate
Ans: A Category: Medium Section: 2.7
63. What type of compound is IF_5 ?
A) Ionic B) Molecular C) Acid D) Base E) Hydrate
Ans: B Category: Medium Section: 2.7
64. What type of compound is HBrO_2 ?
A) Ionic B) Binary C) Acid D) Base E) Hydrate
Ans: C Category: Medium Section: 2.7
65. What type of compound is NaOH ?
A) Binary B) Molecular C) Acid D) Base E) Hydrate
Ans: D Category: Medium Section: 2.7
66. What type of compound is H_2SO_3 ?
A) Ionic B) Binary C) Acid D) Base E) Hydrate
Ans: C Category: Medium Section: 2.7
67. What type of compound is NH_3 ?
A) Ionic B) Ternary C) Acid D) Base E) Hydrate
Ans: D Category: Medium Section: 2.7
68. Name the acid H_3PO_4 (dissolved in water).
A) Phosphoric acid D) Hydrophosphate acid
B) Phosphorous acid E) Hydrophosphoric acid
C) Hydrogen phosphate acid
Ans: A Category: Medium Section: 2.7

Exploring the Variety of Random Documents with Different Content

Welcome to our website – the ideal destination for book lovers and knowledge seekers. With a mission to inspire endlessly, we offer a vast collection of books, ranging from classic literary works to specialized publications, self-development books, and children's literature. Each book is a new journey of discovery, expanding knowledge and enriching the soul of the reader.

Our website is not just a platform for buying books, but a bridge connecting readers to the timeless values of culture and wisdom. With an elegant, user-friendly interface and an intelligent search system, we are committed to providing a quick and convenient shopping experience. Additionally, our special promotions and home delivery services ensure that you save time and fully enjoy the joy of reading.

Let us accompany you on the journey of exploring knowledge and personal growth!